MOOCs - An Introduction

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Transcript

It is a real pleasure to be here at the Forum that will reflect on 'Transforming Indian Higher Education through MOOCs'. I am very grateful to Prof MM Pant for the kind invitation and the opportunity to speak to you. I'll share some basic developments in Massive Open Online Courses or MOOCs to start the conversation on where the triggers for transformation may lie. I have prepared this presentation with our Director, Technology and Knowledge Management, Dr V Balaji.

I will first look at the context of Higher Education (HE) today and the developments that led to the emergence of MOOCs. I will conclude with the implications that MOOCs have for HE in the developing world.

Let me briefly touch on 3 factors that impact HE today: the unprecedented demand, the escalating costs and the unimaginable pace of technological change.

In 2007, there were 150 million tertiary students globally, a 53% increase over 2000. We find that the number has increased to 165 million in 2012 with an estimate that this is expected to rise to 263 million in 2025.

In spite of this huge expansion in Higher Education, the APRs in the developing world are far below those in the OECD countries. For example, in South Asia, the APRs remain at about 15%: between now and 2025, we will need to build four universities with a capacity of 30000 every week if we are to accommodate children who would reach enrollment age during this period. In a recent article in the *Scientific American*, Pawan Agarwal states that 5000 new enrollments take place in India even as 10 new institutions open their doors every day. Another study estimates that India would need an additional 40 million university places by 2025. These are staggering numbers, which may not mean much—but they do highlight the pressing need for enhancing access to higher education.

Second, the costs of HE have risen exponentially. An article in *The Economist* asks whether higher education is still worth it? The costs of higher education have risen way above inflation rates in the past three decades, making HE increasingly unaffordable. This may be the American situation but quality HE is still beyond the reach of many in the developing world.

The unanticipated and rapid rise of cell telephony and affordable Tablets, are making a contribution towards turning the digital divide into a dividend. As of June 2013, more Tablet computers and powerful and affordable smartphones were bought than laptops and desktops

As you can see from this chart, the growth of mobiles in developing countries has far exceeded the development of mobiles in developed countries in the last five years. There is a fourfold increase in the growth of mobiles in developing countries during this period.

In 2006, less than 1 per 100 persons had access to mobile broadband, whereas by 2011, this number has increased to over 8 per hundred. This is an eight-fold increase in the last five years and is expected to keep increasing at this pace.

The issues of demand, affordability and accessible technology have all come together to generate a response in the form of MOOCs, something which was not possible during the days of the Dotcom boom, just a decade ago. Started at the University of Manitoba in 2008, MOOCs have spread rapidly to the ivy league institutions of the United States. According to the evolving definition on Wikipedia '… a MOOC is a type of online course aimed at large scale participation …MOOCs are a recent development in the area of distance education, and a progression of the kind of open education ideals suggested by OER'.

MOOCs are at an early stage of development. Several terms are still used in a flexible way. This slide shows a number of frequently used terms and their broadly accepted meanings in practice. A key characterization relates to scalability or community networking. Emphasize scalability and you get xMOOC; with the emphasis on community one talks of cMOOCs. There is no particular definition of what is massive. We see it more as the theoretical capacity of a MOOC platform to handle large to very large numbers of sign-ups, in thousands if not in tens of thousands.

Three well-known MOOC platforms are the edX, Coursera and Udacity, all operated from the USA. FutureLearn, to be launched later this year, is designed and operated by the OU UK. This is the only MOOC platform per se to be offered by an ODL organization. COL's WikiEducator platform was used to provide services to hundreds of learners under its Learning for Content training initiative way back in 2007, a modest precursor of the present MOOC.

An Observatory of Borderless Higher Education report sums up that MOOCs are usually free of charge; designed for large numbers; designed to encourage peer to peer learning and meant to award completion certificates rather than course credits. This was in 2012—some of these elements, such as the awarding of course credits are already beginning to change.

Stanford University offered a free course in artificial intelligence last year which registered 160,000 students from nearly all countries of the world, of which 23,000 completed the course.

MITx offered its first course on Circuits and electronic in May this year at which 155,000 students from 160 countries registered, of which 7157 passed the course. Even though the pass percentage is well below 10%, the edX president Prof Anant Agarawal says ' if you look at the number in absolute terms, its as many students as might take the course in 40 years in MIT'.

The MOOC effect is unexpected in some sense. 270, 000 people signed up for the Computer Science (CS) course offered by Udacity which is much larger than the total number of learners who aspire to do CS courses in nearly 3000 degree granting institutions in the USA. So the potential to reach the unreached is certainly there.

A study in early 2013 in IRRODL surveyed MOOCs in 2012 and summed up the distribution of subjects covered. The STEM and Business topics were predominant and the maximum number of learners came from the US and from European countries.

When one examines the origins of learners signing up for the big three MOOC's, one finds that developing countries such as India and Brazil contribute about 14 percent of the sign ups. While MOOC's may not yet have caught up in developing countries, their viability for at least emerging economies is becoming clearer. It is significant to note that China is not yet present in a significant way, possibly because of the language barrier, ie English.

A more up-to-date examination of subject matter of MOOC courses (July 2013) shows that about 28 percent belong to arts and humanities. Predominance of STEM and Business topics is along the expected lines and the presence of a significant number of arts and humanities courses is worth noting. This shows that there are no subject-related barriers to MOOC offerings.

What about MOOCs in the Commonwealth? FutureLearn is an ambitious and large initiative of the OU UK. It has secured partnerships from 23 universities and non-academic organisations such as the British Council have also joined this Consortium. Expected coverage is 13 million in five years starting later in 2013.This effort is premised on offering a rich user experience and can be expected to deploy media techniques significantly and to build on the expertise of the Open University in offering quality distance learning courses. Will the MOOC effect transform perceptions of distance education globally?

Pakistan, has commenced a coordinated effort to make use of MOOCs and to offer them via high-speed video links provided by the Pakistan Education and Research Network- one Gigabyte to every college. They plan to host MIT OCW locally, to use the Coursera platform and to offer credits. One significant feature of the Pakistan initiative is their adoption of quality assured free content like the Khan Academy materials especially in Urdu.

India's own NPTEL project has announced plans to offer Massive Open Online Certification. Initial courses, built on NPTEL's published materials, will focus on three industry-relevant IT topics. This is a joint effort of academia- five IIT's coordinated by IIT-Madras and several IIIT's- and Industry-NASSCOM, TCS (among the largest software services companies in the world) and Cognizant (second largest software services company in India). Unlike MOOC's in the USA, this initiative will offer online mentoring and will source expert-mentors from among senior managers in the industry. Certification is offered through industry-standard proctored examinations that are scheduled to take place several times a year in multiple locations. A learner can appear in the examination at her own choice of time and location. Will MOOCs transform the way learning is certified?

MOOCs have so far been offered in HE. What about MOOCs in Learning for Development (L4D)? To explore this, COL is partnering with IIT-Kanpur to offer a MOOC on mobiles-for-development. Participation in this MOOC will be certified by IIT-Kanpur. The offering will be compatible with mobile

devices (Android) and will provide online mentoring using experts in different development domains. This offering will use the flipped classroom method to enhance user experience.

This MOOC4D will cover essentials of technology and will offer case studies on banking and credit, m-learning and agriculture extension. Part of the content will be generated afresh and another part will be based on transformed or adapted OER from a number of quality-assured sources. About 14,000 learners are expected to sign up for this course. An Open-Source LMS, Canvas, is being used.

What is the business model if the institutions do not charge fees? Even when fees are charged for exams, they are minimal. What emerges is that venture capital or generous endowments are required to build and launch MOOC services on scale. User-derived revenue streams have been identified for edX and Udacity but the actual figures as of now are not available.

In the absence of published revenue information, a few models are emerging. From the three MOOC companies that have recently developed, fees are being charged for services, the costs are being shifted from the student to the institution or to future employers. Will students pay less for HE in the future? Will HE become more inclusive and affordable?

Will MOOCs transform the way we teach and learn? The question of pedagogy in MOOC based learning has generated a great deal of discussion. Tony Bates characterises MOOC pedagogy as essentially behaviorist. Sir John Daniel points out that MOOCs may serve to draw the attention of research universities to the quality of their teaching - a dimension they are known to have paid low attention to for decades.

Critical observers have made a distinction between xMOOCs and cMOOCs. xMOOC's focus on scale, present the teacher as expert and are behaviorist.

cMOOC's can be thought of as connectivist, relying more on student-student interaction. Both methods have their own advantages and it would be difficult to sustain such distinctions.

A significant difference in MOOC-based learning is the emergence of the flipped classroom as the standard practice. Another significant development contributing to teaching is the availability of huge masses of learner data that can be analysed for continuous improvement and better outcomes. This also allows a teacher or mentor to personalize the interaction with a learner. Could this lead to a transformation in the way we teach?

Credentialling is still an open concern in this early stage of MOOC's. Some options available are presented. While badges might suit certain types of courses, HE credit might require invigilated examinations.

HE institutions are divided about offering credit to MOOC learners. A recent survey conducted by the Chronicle of Higher Education asked the professors running the MOOCs if they believed that students who succeed in their MOOCs deserve course credit from their institution, 72% said no. What does this say about the quality and rigour of the MOOC offerings?

But since MOOCs are offered globally and to a diversity of learners, the question is can one size fit all? What of student verification and academic integrity? Is a peer reviewed assessment acceptable? Is there a

delinking of the institutions which teach and the institutions which credential? Will this result in the rise of Degree Granting Bodies or DGB's?

Would offering MOOCs attract potential learners to join? Or would this make the institution a global player in certain niche areas? Students who have completed a MOOC may wish to translate the certificate of completion into a qualification. Would our institutions have the flexible frameworks for credit transfers, and recognition of qualifications?

Developing world institutions can modify the MOOC model to offer more blended approaches and better learner support services towards degrees and diplomas. The core interest for institutions may be to extensively test the viability and usefulness of select MOOC technologies for learner profile and data management The research results from the pioneers in MOOCs will provide excellent data for developing world institutions to review their teaching learning practices for better quality and outcomes. Ultimately the transformation can only happen if we can use MOOCs to address the issues of access, quality, costs, relevance and equity.

Thank you for your kind attention.